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OPENING OF THE FIELD MUSEUM.

foreign countries in supplying objects for the Museum. Many of the precious exhibits at the Fair were purchased by the managers of the Museum at very low rates. The valuable anthropological collection gathered by Prof. F. W. Putnam, of Harvard University, and the collection of exhibits of the world's railways devoted to special displays, while the smaller rooms are used to house the permanent collection. The director of the Museum is Mr. F. J. W. Skiff, late chief of the Mines and Mining building of the Columbian Exposition. The collections already gathered represent the progress of industrial art, relics of Columbus, zoology, lithology, mineralogy, and geology. The Museum will be open every day in the year, free on Saturdays, Sundays and all holidays, on other days by paying a small admission. The Field Museum will stand as a permanent memorial of the Columbian Exhibition, and no building could so appropriately represent the greatness of the Fair as the beautiful edifice designed by Mr. C. B. Atwood.

HOW TO PREVENT AND EVADE INSANITY.

The last number of the Alienist and Neurologist contains an interesting article by Dr. Wm. W. Ireland, of Edinburgh, on the above subject. He holds that persons accustomed to mental cultivation and discipline have great advantages in escaping from the taints of insanity. He thinks that mathematics is a very healthful exercise for a disturbed mind. He quotes Bacon, who says, "If a man's wits do wander, let him study mathematics, for in demonstrations, if his wits be called away ever so little, he must begin again." The learning of a new language, Dr. Ireland says, has been found by experience to engage the mind without fatiguing or harassing it. The study of animated nature, zoology and botany, with its illimitable fields and its cultivation of the inceptive and receptive faculties alike, and the opportunity it gives for outdoor exercise, is a valuable means of diversion for a mind unhinged or liable to become so. But we must not forget that all men are not studious; the great majority of men rather prefer pursuits which bring them in direct contact and dealing with the outer world. He who wishes to escape the morbid current of his thoughts and fears should select some one pursuit and involve himself in action concerning it. Of all such occupations known to us, gardening is the most wholesome and engrossing. Gardening gives exercise to the body and mind alike, and though mainly an out of door pursuit, it also gives some employment under cover.

Dr. Ireland's paper concludes with a number of excellent suggestions relating to the medical treatment of incipient insanity, the housing and care of patients.

PASSENGER RAILROAD TRAFFIC IN NEW YORK AND LONDON.

According to a recent article in the Railroad Gazette. the steam city railroads of London earn only \$73,000 a mile, while those of New York City earn \$300,000 a mile per annum. It appears the New York railroads carry a far larger number of passengers and run quicker and make more stops than the London roads. In New York it takes from 12 to 15 seconds for the people to get into and out of the cars, but in London it takes about 30 seconds, although the cars in London have side doors, which are supposed to afford greater facilities for the ingress and outgo for passengers. The Gazette says that the superior speed on the New York roads is largely a matter of smarter working. An underground road ought to be able to make greater speed, for it can use heavy engines and so get up to the maximum speed quicker; but, on the other hand, it is questionable if what they gain in this way is not lost in the greater caution needed in working heavier trains and working them in tunnels. These elements necessitate absolute blocking; but, on the elevated railroads of New York, worked in what is almost always a clear atmosphere and with but few obstructions to a long sight ahead, the trains can be run safely at a considerable speed without block signals. One train can run right up to the tail of another and thus take advantage of every second.

It is said that in some cases electricity enough to run The great Field Columbian Museum was opened June fans and sewing machines, to the extent of over one 2. The beautiful Art building of the Columbian Ex- H. P., can be had; it is stated that the gas pipe in position, held at Chicago last year, has been utilized. almost any house near the trolley lines will give seven On Oct. 26, 1893, Marshall Field, one of Unicago's amperes and 300 volts, sufficient to run seven ordimerchant princes, subscribed \$1,000,000, and the success 'nary electric fans or furnish power for seven 16 candle of the Museum was assured. Donations poured in lights. Such a current would do very much better rapidly and the various States of the Union vied with than this. One of the experts said : "If you drive a couple of gas pipes to the return leg under the railroad track, you can get sufficient power to run heavy machinery." As this power seems to be running to waste in the ground, there appears to be no satisfactory reason why it should not be made use of free of charge by any one who has the good fortune to live along the are among the objects of interest. The large halls are lineof the trolley railway. It is different from secretly tapping water pipes or gas mains. This electricity is running in the ground; it has been discharged or thrown away by the railroad company, which consequently can have no claim upon it.

THE LIMITATION OF VIVISECTION.

The benefits derived from vivisection are incontestable, but like some other good things, vivisection is often wrongfully used. 'The general public and even members of the medical profession are ignorant of the extent of vivisection and of the methods of its practice. In order to promote interest in this subject, a society, having headquarters in New York City, has been formed, entitled : "The Society for the Protection of Animals Under Vivisection." The object of the society is to spread information in regard to the extent of the practice of vivisection and to enforce the laws regarding it. The society is not antagonistic to vivisection when performed in the cause of science by professors of incorporated medical schools, but is opposed to the unauthorized practice in which animals are subjected to useless cruelty and to painful experiments which merely illustrate well known truths.

There is a too frequent use of vivisection in schools, which tends to deaden the youthful mind to the suffering of helpless creatures.

In most of the States vivisection is without legal restriction; but the State of New York provides that vivisection shall only be practiced under the authorization of an incorporated medical school or university (laws of 1867, chapter 375).

In the States which have no laws regarding vivisection, public opinion must be relied upon for a sentiment condemning its unnecessary practice. A request for reading matter on this subject, taken from the best authorities, will be sent on application to the secretary of the society, P. O. box 2828, New York City.

+++++ THE ENGINEER'S WORK IN MODERN BUILDINGS.

The profession of architect as relating to the designing of buildings has occupied a position intermediate between that of a profession and of an art. It has related to the production of the beautiful, and the architectural enthusiast has often placed his field of work on a par with music, and has regarded it as the crystallization of all that is best in the plastic and designing arts. A beautiful building appeals to the senses as a picture and as a statue, its effect depending partly on contour and partly on relief. Again, the artist proper may contribute to the decoration of a building. The sculptor may supply designs for caryatides, or may design special finials and other features that are truly statuesque. The artist in the realm of painting and drawing may control many elements of the design. The full architect, like Michael Angelo, should be both sculptor and painter.

But of recent years a new function has to be called in, in the construction of modern city buildings, which function is the work of the modern civil engineer. Occasionally in the past the engineering aspect was prominent in buildings. The Roman Pantheon and the Cathedral of St. Peter are examples of dome construction worthy of the highest praise as engineering achievements pure and simple. But with the advent of steel in place of stone a new type of engineer has arisen, one who by relying on a material of tensile and compressive strength many times greater than that of brick or stone, produces new effects. He builds bridges of spans only possible by virtue of the qualities of steel. The old-time stone bridge which would carry itself would carry any load that could be put upon it, and no thought of wind strains troubled its constructor. Its weight alone was enough to prevent the possibility of lateral displacement. In the modern steel bridge the load must be taken into account, the wind pressure must be provided for, and the effort is to make the trusses as light as possible. The relation of weight to strength is so much more favorable in steel than in stone or brick that the conservative element of weight of structure only obtains anything like its old sway in the largest of steel structures. Steel has now invaded the architect's realm, and the last few years have seen a new type of city building evolved. one which would be impossible without steel, and in which the modern engineer asserts his presence. The twenty or more storied office building is now based on foundations made by caisson work, perhaps with ompressed air. On the piers thus established the

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FREE ELECTRICITY.

According to a writer in the New York World. there are a number of places in the city of Brooklyn where electricity may be had free of charge, by simply connecting wires between water mains and gas pipes where they enter buildings. Along the lines of the trolley railways in Brooklyn there is a very extensive discharge of electricity into the ground, and these currents find their way to the water pipes and gas pipes.